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MEMORANDUM FOR: Chief, Engineering Division
Chief, Okinawa Bureau
Chief, Seoul Bureau

FROM: [redacted] STAT
Far East Regional Engineer

SUBJECT: Seoul Trip Report for 23 Nov - 3 Dec 1981

I. INTRODUCTION

This memorandum is a report on the engineering activities of the Seoul Bureau. The purpose of this TDY was to become knowledgeable in the Bureau's engineering activities and projected requirements. This trip was in conjunction with a cruising survey by the Okinawa Staff Cruising Officer.

II. ENGINEERING ACTIVITIES

[redacted] STAT

2. Receiver Site

a. In effect, the receiver site is a two-site operation with the military providing all communications services and the Bureau having responsibility for the receiving, remote control and communications equipment.

b. The equipment is in an enclosed (caged) area within a secured operations building. The technicians must be escorted to and from the work area. It is satisfactorily maintained by the technicians on their periodic visits.

c. An inspection of the Bureau's four beverage antennas showed that the antenna maintenance is being completed in a professional manner. The coupling transformer project has been completed satisfactorily.

3. Bureau

a. The Bureau is small and is configured efficiently for operations.

b. The cruising room and the technicians' shop and desk areas are small and cluttered for the amount of human activity in those areas. The cruising room is usually too warm for comfort.

B. Personnel (Technical)

1. The Bureau's technical staff consists of three indigenous technicians. The Chief Technician is responsible for the Bureau's technical support requirements including supervision, guidance and training of the subordinate technicians, engineering, logistics and commercial liaison with local vendors.

2. The technical staff appear to be well qualified in their maintenance capabilities for receivers, teletype and communications equipment. There is some doubt of their capabilities for more advanced technology. They all appear to be able to read and understand circuit schematics satisfactorily. Most of the time, it takes all three to do a single task, under the guise of training. Trouble-shooting techniques appeared satisfactory but they had trouble determining what to check for the given symptoms.

3. It is suspected that the above deficiencies could be resolved by providing technical supervision and guidance on an individual basis.

4. Additional difficulties encountered are the lack of familiarization of American standards and the ever-present language problem which approached 100 percent during periods of questioning concerning the noted deficiencies.

C. Technical Inspection

1. An inspection was conducted to evaluate the present system in terms of installation practices, system configuration and technical quality (i.e., workmanship).

2. None of the basic installation practices have been implemented. There is no system ground, cable shields are left floating or do not exist (i.e., twisted pairs), and some rack cable wiring needs to be dressed up. No corrective action was requested at this time. A project to upgrade this facility

to appropriate standards could be done on a long-term basis with proper guidance and instructions. Costs would be minimal but an extensive effort would be required.

3. The patch panel configuration could be improved by using miniature, low-level type panels. Patch panels in a communications facility should provide signal ground patching.

4. As is the case when telephone terminal blocks are used, all connections have to be soldered. This means that when circuit configurations change, wires have to be unsoldered, unwrapped and left hanging loose, resoldered or replaced. All of these contribute to a non-professional looking installation. This is the case throughout the Far East Bureaus. The patch panels, terminal blocks and connections to outside lines should be done with a 2-block wire wrap configuration which would eliminate all of the above arguments and provide a permanent cable print.

5. The signal distribution system was not observed but it is assumed that it is a loop current configuration. This system is outdated and is not a convenient system to work with. It requires too much rack space and special attention has to be made on every patch and system reconfiguration. It also limits the purchase of new equipment to the interfacing of an antiquated method vice modern signalling techniques. Plans should be made to upgrade this system to the MIL-188c system being developed by the Okinawa Bureau.

6. The Bureau's technical responsibility is limited to in-house equipment and wiring. All signal carrier functions (i.e., microwave circuits) are provided by the military circuits.

7. The WJ remote receiver control system was installed in preparation for the staff cruising officer's survey. This installation was completed and checked out the day before Thanksgiving. Returning to work Friday morning, it was found that the remote system was inoperative. An investigation showed that an IC chip was inverted, 2 other IC chips needed replacing and the internal test control switches were not set for proper operation. The time required to return this unit to operational status was 2 1/2 working days, during which time the observations in section II.B were made.

IV. OTHER SUBJECTS

A. Project Fastback

The completion of this project, to upgrade the military microwave capabilities between Seoul and the receiver site, has been rescheduled for June 1982.

B. Possible Bureau Move

Embassy queries concerning the Bureau's floor space, power and air conditioning requirements have alerted the Bureau that the Embassy may request the Bureau to relocate. The Bureau will report any further developments along these lines.

C. Cruising

1. A Bureau cruising survey was being conducted by the Okinawa Staff Cruising Officer from 30 Nov through 11 Dec 1981. Observations were made during a portion of this period to identify areas of concern where engineering support could be improved.

2. Utilizing fixed direction antennas for cruising efforts is very restrictive. They also hinder operational coverage but not to the same extent as cruising. Where possible, rotatable or steerable 360° coverage antennas should be available for cruising surveys.

3. Using receiver remote control units also has its drawbacks. The Collins remote control is cumbersome, hard to operate and responds very slowly for cruising requirements. The WJ remote system is a remarkable improvement over the Collins system and with digital communications paths, it could be much better.

4. Antenna matrices are a must in remote systems. However, more versatility should be provided in the sizing and control capabilities. In the Seoul Bureau, a minimum matrix size should be a 1 x 10 with a 4 bit control word.

5. Beverage antennas are, in effect, useless for cruising. The inability to have them pointing directly at the targeted station and their inherent broadband noise effectively render them useless. Frequency band filters with band switching capability should be proved to minimize this noise problem.

V. CONCLUSIONS

A. The Bureau is in adequate technical condition. The technical staff is capable of supporting the Bureau's requirements as they exist today. However, in the event of automatic data processing equipment, [redacted] and sophisticated remote control systems, extensive training would be required. STAT

B. The technical staff needs technical supervision. They are adequately knowledgeable in technical matters but have difficulty in execution. This Bureau is a prime candidate for a staff technical training position.

C. A project should be established to upgrade the Bureau to MIL-188c signal distribution, miniature tip/ring/sleeve patch panels using wire wrap terminal blocks and installation of a grounding system. This project could be implemented on a long-term basis.

D. A project should be established to provide switchable frequency band selection for the beverage antennas. This project could be applicable worldwide.

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cc: C/Ops